

ATOMIC ENERGY *newsletter*[®]

A SERVICE FOR INDUSTRY BUSINESS ENGINEERING AND RESEARCH
ROBERT M. SHERMAN, EDITOR. PUBLISHED BI-WEEKLY BY ATOMIC ENERGY NEWS CO., 1000 SIXTH AVENUE, NEW YORK 18, N. Y.

Dear Sir:

September 4, 1956
Vol. 16...No. 2

Radiation physics laboratory, to cost \$2 million, is to be built by E. I. DuPont de Nemours & Co. at its experimental station, Wilmington, Del. Facilities are for long-range research on measurement of radiation and its effect on various materials. The company said its interest is mainly in radiation effects on reactions involved in chemical manufacture. New laboratory will be a two-story structure; construction is scheduled to begin immediately, with completion expected by January, 1958. (Other BUSINESS news, p. 2 this LETTER.)

New Austrian nuclear energy organization, Oesterreichische Studiengesellschaft fur Atomenergie GmbH, has an issued capital of 6.24 million schilling, of which the State holds 51%. The balance was subscribed by some 60 undertakings including banks, institutions, and nationalized and private industrial organizations. Supervisory board of 27 members will be under chairmanship of Dr. Rudolph Stahl. Technical manager will be Dr. Michael Higatsberger of the Physics Institute, University of Vienna. (Other INTERNATIONAL news, p. 4 this LETTER.)

Negotiations were completed last fortnight between Lost Creek Oil & Uranium Co., Rawlins, Wyo., and the USAEC, for construction and operation by Lost Creek of a uranium processing mill near Split Rock, Fremont County, Wyoming. Contract guarantees purchase by USAEC of uranium concentrate output of mill. Process to be used is based on developmental work for Lost Creek of Colorado School of Mines Research Foundation, Inc. Completion of plant, on which initial construction is now underway, is expected August, 1957.

A 10% stock dividend, for shareholders of record Aug. 31, 1956, will be paid by Nuclear Instrument & Chemical Corp., Chicago manufacturer and processor of nucleonic products. E. B. Tilton, Nuclear president and chairman said that while the company has ample funds to pay a cash dividend, it is preferred to conserve funds for growth purposes. He noted that this is the third straight year for Nuclear of increased sales and profits. The firm now has 256,650 shares of common stock outstanding, traded over-the-counter, with about 1,000 shareholders. (Other FINANCIAL news, p. 3 this LETTER.)

Grant of \$806,000 for the nuclear physics program of the University of Rochester has been made by the USAEC. Covering a nine-month period, some \$200,000 of the grant will be for construction of a nuclear emulsion laboratory building and an addition to the synchrocyclotron laboratory building. (Other news in EDUCATIONAL field, p. 3 this LETTER.)

Testing of nuclear weapons has been resumed in the Soviet Union, according to analyses of upper air samples from monitoring stations in the U. S., Canada, and overseas, and data from airborne instruments of aerial patrols. Last fortnight the USAEC confirmed that a nuclear device, with a yield of less than a megaton, was detonated (Aug. 24), by the USSR in southwest Siberia, north of India, Afghanistan, and Pakistan, and west of China. And, last week, President Eisenhower disclosed that another detonation occurred Aug. 30, at the same Soviet proving ground.

ATOMIC ENERGY BUSINESS NEWS...

NUCLEAR POWER PLANT FOR ALASKA IN FIRST STAGES OF CONTRACT NEGOTIATION:- Contract is being negotiated by the USAEC with Chugach Electric Assoc., Anchorage, Alaska, and the Association's engineers, Nuclear Development Corp. of America, White Plains, N. Y., for a 10,000 elec. KW nuclear power reactor system to be located at Anchorage. While final costs have not been firmed up, for the initial phase of the project (initial design and development) the USAEC was asked to put up \$2,225,000. Total cost to the Commission, for development, design and construction of the reactor would be a maximum of \$18,325,000. Of this, \$5,500,000 would be for the reactor itself, to which the USAEC would retain title. Chugach Electric Assoc. would provide the reactor site, turbine generator facilities, necessary buildings; it would assume \$1,850,000 in capital costs.

Favorably influencing the USAEC toward OK'ing this project was the design of the nuclear reactor which will use heavy water as moderator, liquid sodium as coolant, and slightly enriched uranium as fuel. Such a reactor gives long fuel lifetime, a high burnup of contained uranium-235 (50%) and produced plutonium (25%), which factors make for economy and efficiency of operation. Nuclear Development estimated that total cost of the electricity from the plant, including development charges, will be around 22 mills per KWH. Cost of the electricity to Chugach Electric is estimated at 12 mills per KWH, roughly comparable to hydro-electric power in the Anchorage area. Modern steam plants in that area, using conventional fuels, produce electricity for 16 mills per KWH, while in the interior of Alaska the cost is about 27 mills.

CONTRACT AWARDED FOR UNIT OF NEW NUCLEAR POWER PLANT IN EAST:- Contract in amount of \$3,250,000 to design and build an oil-fired superheater has been awarded Foster Wheeler Corp., New York. Unit will be used at the nuclear power station being built at Indian Point, N.Y., by Consolidated Edison Co., New York, to boost heat of steam from the reactor to 1,000 deg. F., from 450 deg. F. heat as it leaves the reactor.

EXPANSION IN DEPARTMENT OF ARMY'S RADIATION ACTIVITIES:- Quartermaster Radiation Planning Agency, established to integrate the Army's food and other irradiation activities, is developing plans for the new Army Ionizing Radiation Center. The Center, an \$8 million project, will have a pilot irradiation plant capable of processing 1,000 tons of food per month, as well as irradiating leather goods, plastics, etc. Although the new planning Agency will be under the Army's Quartermaster Research & Development Command, Natick, Mass., its personnel will be stationed in Washington. The Agency will eventually move to the site of the Center, which has not yet been disclosed.

NUCLEAR WORK FOR CANADA BY U.S. FIRMS:- Long term contract has been awarded AMF Atomics (Canada) Ltd., to fabricate fuel elements for Atomic Energy of Canada, Ltd's Chalk River, Ontario, facilities. A Canadian Government organization, Atomic Energy of Canada operates at Chalk River the NRX research reactor, and the new NRU reactor, scheduled to go critical this year. AMF Atomics (Canada) Ltd., wholly owned subsidiary of America Machine & Foundry Co., New York, is the first private company in Canada to be organized solely for nuclear research and development and engineering. It will build a 30,000 sq. ft. plant on a 30-acre site at Port Hope, Ontario, to carry out the contract.

Separate quarters have been set up by Canadian Westinghouse for its atomic energy division in Hamilton, Ontario, where a 40-person staff is designing test equipment for the NRU reactor, at Chalk River. G. L. Wilcox, Canadian Westinghouse president, said the establishment of separate and self-contained headquarters for the atomic energy division reflects the importance the firm attaches to the future of atomic energy in the generation of electric power. (Canadian Westinghouse is part of U.S. Westinghouse group: Westinghouse Electric, Westinghouse Air Brake Co., Westinghouse International Co., etc.)

ADDITIONAL FUNDS GIVEN DMEA FOR MINERAL EXPLORATION:- Some \$6 million in additional borrowing authority was given Defense Minerals Exploration Administration by Office of Defense Mobilization to finance on a participating basis private exploration projects for critical and strategic minerals including uranium, thorium, mercury and beryl. DMEA may finance 75% of the cost of such ventures. Recent DMEA uranium grants include Vitro Minerals Corp., Fremont County, Wyo., \$64,816; American Leduc Uranium Corp., Mesa County, Colo., \$23,944; and Burmac Exploration Corp., Fallon county, Mont., \$15,512.

ATOMIC ENERGY FINANCIAL NEWS...

INTEREST IN URANIUM MILL PURCHASED BY INVESTMENT TRUST:- Atlas Corp., closed-end investment company with some \$40 million invested in uranium mining properties, has acquired a 30% interest in the Moab, Utah, uranium mill of Uranium Reduction Co. Price paid was not disclosed. Transaction was by Hidden Splendor Mining Co., Atlas subsidiary. Original intent had been for Hidden Splendor to erect its own mill. The new 30% interest in the Uranium Reduction mill gives Hidden Splendor benefit of USAEC guarantee to buy output at profitable price to milling concern; this is covered by contract with USAEC held by Uranium Reduction. (Floyd Odum, president of Atlas, personally negotiated the purchase of the Delta Mine, one of Hidden Splendor's properties, from Vernon J. Pick for \$9 million; he has now advised the stockholders that "it is now regarded as secondary and of decreasing importance". The SEC was told by Atlas Corp. that ore reserves of the Delta Mine were \$4,083,750; out of this, mining and development costs must come: this LETTER, May 29, 1956, page 1.) Atlas Corp., for the six months ended June 30, 1956, showed a net loss of \$550,151, including \$80,739 net realized loss on investments.

EARNINGS OF NUCLEAR MATERIALS PRODUCERS SHOW GAINS:- Sales of Lithium Corp. of America for the first six months of this year more than doubled those of the comparable 1955 period, while net rose to the equivalent of 72¢ a share from a \$375,128 deficit for the first six months of 1955. No cash dividends have been paid since incorporation in 1944; none are anticipated in the near future, H. W. Rogers, president, said, because of the firm's needs for expansion funds and repayment of outstanding notes. Introduction of new products and lower production costs will continue the profit picture, Mr. Rogers predicts, and expects a better second half showing for 1956.

Sales of Beryllium Corp. will exceed \$16 million in 1956, W. R. Lowry, president, has predicted; for 1955, sales had been \$11,336,861. For the first six months of this year, Beryllium had reported net profit of \$569,328 on gross sales of \$8,602,396.

MERGER OF URANIUM FIRMS PLANNED:- Continuing the trend of mergers among uranium producers of the southwest, Red Hill Uranium Co., Moab, will absorb Colonial Nuclear Industries, Grand Junction, Colo., in an exchange of stock. One share of Red Hill will be exchanged for two shares of Colonial Nuclear. Assets of Colonial Nuclear are approximately \$447,924 and the company has an income of approximately \$4,000 per month from uranium and oil properties. Jack C. Turner, president of Red Hill, said he expects to announce other acquisitions shortly, including the purchase of a major producing mine in the White Canyon area of San Juan County, Utah.

MUTUAL FUND WITH NUCLEAR HOLDINGS SHOWS ASSET INCREASE:- Net assets of Energy Fund, Inc., were \$2,665,666 June 30th, 1956 against \$1,410,513 at the beginning of 1956. Fund is an open-end mutual fund with holdings in oil, electrical, nuclear, etc., energy industries. Its portfolio shows holdings in nuclear materials producers; oil and gas operations; utilities; and manufacturing concerns. Management of Energy Fund is by Ralph E. Samuel & Co., New York. Feature of Fund is absence of loading charge to share purchasers, although 1% charge is made if shares are redeemed.

EDUCATIONAL NEWS...

URANIUM METAL LOAN MADE TO TWO MORE SCHOOLS:- Two loans of natural uranium metal, plus neutron sources, are being made by the USAEC. Stanford Institute, Stanford, Calif., will be loaned 1,900 kg., and Iowa State College, Ames, Ia., 1,680 kg. The uranium and neutron sources are for subcritical sources for teaching purposes. Other schools which previously received such material include Alabama Polytech, New York University, University of Florida, Virginia Polytech, M. I. T., and College of the City of New York.

NATIONAL SCIENCE FOUNDATION MAKES GRANT FOR NUCLEAR REACTOR:- Grant of \$500,000 has been made to Mass. Insti. of Technology, Cambridge, by National Science Foundation in support of a nuclear research facility. Remaining cost of the facility, about \$2 million, will be obtained from MIT alumni and by a grant from the Rockefeller Foundation.

CONFERENCE AT OAK RIDGE ON STUDENT TRAINING PROGRAM:- Conference being held at Oak Ridge today (Sept. 4) is on USAEC's proposal to double the number of engineers trained each year at the Institute of Reactor Technology at Oak Ridge. Plan is to have students accepted for ORSORT take the first six months of their training at a university; remaining six months at the Laboratory.

INTERNATIONAL ATOMIC ENERGY NEWS...

BRAZIL:- Export to the United States of thorium and uranium is to cease under recommendations approved last week by Brazil's National Security council and which received the sanction of President Kubitschek of Brazil. Recommendations had been made by a special governmental commission. Bi-lateral pact extended Brazil by the U.S. still stands, however. It provides that the U.S. will contribute \$350,000 toward the cost of an experimental nuclear reactor for Sao Paulo University; will lend Brazil 13.2-lbs. of enriched uranium for the reactor; will give Brazil technical assistance; and will assist in erecting a nuclear power reactor in Brazil.

INDIA:- Now under study by the Indian government are proposals submitted by three foreign firms. Each firm desires to be technical consultant to the Production Ministry on a proposed \$44 million heavy water and fertilizer plant planned for Nangal. From different countries, the firms include Vitro Engineering (U.S.); Costain-John Brown (England); and St. Gobain (France). Estimated production date is 1960 for the plant which will produce 200,000-tons per year of ammonium nitrate, and 7½-tons per year of heavy water. Some 160,000 KW of power will be supplied the plant by the hydro-electric facility at Bhakra Dam.

Following a year of trial production runs, India's new thorium-uranium processing plant will be formally opened next month by the Indian government. The \$224,000 plant, on Trombay Island, near Bombay, is close by that country's swimming-pool-type nuclear reactor (which went critical last month) and is near the site of the NRX nuclear reactor which India is receiving from Canada under the Columbo Plan. The Trombay plant gets its raw material (crude thorium-uranium cake) from Indian Rare Earths, Ltd., at Alwaye, Travancore-Cochin, producing the crude mineral cake from monazite sands of which India has large deposits.

CANADA:- Contract for purchase by United Kingdom of uranium concentrates from Canadian sources has been under discussion at Ottawa with W. Strath and J. A. Nichol representing U. K. Atomic Energy Authority, and W. J. Bennett, president of the Crown controlled Eldorado Uranium & Refining, Ltd., and his staff, acting for Canada. Present meetings were to work out details of method and time of delivery; main features of the contract had been settled some months ago.

FRANCE:- Site at Voine, between the Vienne and Loire rivers, in west central France, has been chosen for this country's first nuclear power plant. Development and design work for the plant's reactor have been underway for some time by the French Atomic Energy Commission scientific staff. Natural, or low-enriched uranium, will be used as fuel; graphite as the moderator; and carbon dioxide as heat transfer agent. Initial output will be 60,000 KW of electrical energy, with eventual expansion planned to 300,000 KW. Electricity produced will be fed into grid of Electricite de France, government-owned electric power industry.

PRODUCTS, PROCESSES & INSTRUMENTS...

PRODUCTS:- Portable radiography machine, using as radiation source 50 curies of cobalt-60, is said to be the most powerful portable machine available for non-destructive testing purposes. Completely self-contained, the apparatus is said to furnish penetration equivalent to a 2-million-volt X-ray machine. Trade-named Multitron, the machine was developed by the Nuclear Systems Div., Budd Co., Phila., Pa.

Price reductions on carbon-14 and iodine-131 have been made by primary source for these isotopes, USAEC's Oak Ridge National Laboratory, Oak Ridge, Tenn. Carbon-14 is now \$28/mc, up to 199 mc; \$22/mc in greater amounts. Previous prices had been \$36 and \$32 respectively. Iodine-131 is now 50¢/mc, up to 499 mc; 40¢/mc in greater amounts. Previous prices had been 75¢ and 65¢ respectively.

PROCESSES:- Zone refining, as a simple means of purifying uranium for research purposes, has been successfully developed by the atomic energy division of Sylvania Electric Products, Inc., Bayside, L. I. The technique is one in wide use as a method of preparing ultra-high-purity germanium; boron, iron, nickel and other impurities have been removed from uranium by the Sylvania staff using the method.

Commercial irradiation of diamonds is now to be done at facilities of the U.K. Atomic Energy Authority, by the Technical Irradiation Group, Isotope Div., Atomic Energy Research Establishment, Harwell. Irradiation of diamonds had been done previously only for research purposes; charges for the new service will be fixed by arrangement. Color changes induced by irradiation, to enhance value, are chief attraction of the process.

ATOMIC PATENT DIGEST...latest industrial grants...

GRANTS TO PRIVATE CONCERNS AND/OR INDIVIDUALS:- Semi-continuous process of producing zirconium compounds substantially free from hafnium. U.S. Pat. No. 2,759,792 issued Aug. 21, 1956, to B. A. J. Lister, J. F. Duncan, J. M. Hutcheon, all of London, England.

Method of separating zirconium and hafnium. U. S. Pat. No. 2,759,793 issued Aug. 21, 1956, to B. A. J. Lister, J. F. Duncan, London, England.

Apparatus for making a radioactivity log of a well. U. S. Pat. No. 2,760,078 issued Aug. 21, 1956; assigned to Well Surveys, Inc., Tulsa, Okla. (Inventor: A. H. Youmans)

Method of logging an earth borehole using, in combination with logging apparatus, a fluid carrying radioactive tracer material. U. S. Pat. No. 2,760,079, issued Aug. 21, 1956 to J. J. Arps, Tulsa, Okla.

Combined radiological dose rate and integrated rate meter. U. S. Pat. No. 2,760,080 issued Aug. 21, 1956; assigned to Consolidated Electrodynamics Corp., Pasadena, Calif. (Inventor: C. F. Robinson.)

Radiation dosimeter for indicating gamma and X-ray radiation. U. S. Pat. No. 2,761,073 issued Aug. 28, 1956 to L. E. Carlbom, L. G. Hedlund, Stockholm, Sweden.

GRANTS TO GOVERNMENTAL ORGANIZATIONS:- Method of removing chlorine from an alkaline uranium compound. U. S. Pat. No. 2,759,788 issued Aug. 21, 1956; assigned to United States of America (USAEC). (Inventor: Louis Spiegler.)

Method of converting uranium peroxide to a water-soluble uranium product. U. S. Pat. No. 2,759,789 issued Aug. 21, 1956; assigned to United States of America (USAEC). (Inventor: Louis Spiegler.)

Assembly for countercurrent treatment of fluids having different specific gravities. U. S. Pat. No. 2,759,801 issued Aug. 21, 1956; assigned to United States of America (USAEC). (Inventors: J. H. Yeaker, K. S. Eckberg.)

Process of coating a metallic object. U. S. Pat. No. 2,759,886 issued Aug. 21, 1956; assigned to United States of America (USAEC). (Inventor: H. F. Priest.)

Method and apparatus for measuring electrical current. U. S. Pat. No. 2,760,158 issued Aug. 21, 1956; assigned to United States of America (USAEC). (Inventor: Q. A. Kerns.)

Method of recovering monatomic and halide gases from reactor wastes. U. S. Pat. No. 2,760,598 issued Aug. 28, 1956; assigned to United States of America (USAEC). (Inventors: F. C. Dietz, R. C. Thorburn.)

Binary voltage generating circuit for electrostatic memory system. U. S. Pat. No. 2,761,063 issued Aug. 28, 1956; assigned to United States of America (USAEC). (Inventor: J. H. Bigelow.)

Fast neutron dosimeter. U. S. Pat. No. 2,761,071 issued Aug. 28, 1956; assigned to United States of America (USAEC). (Inventor: G. S. Hurst.)

Dosimeter for gamma radiation. U. S. Pat. No. 2,761,070 issued Aug. 28, 1956; assigned to United States of America (Secretary of the Army). (Inventors: A. M. Moos, S. Wallack.)

TRADE MARK GRANTS:- Under SN-1,488 Universal Atomics Corp., New York, N.Y., is to receive U.S. trade-mark grant (Principal Register) for letters UAC in distinctive configuration representing atomic nucleus.

Under SN-1,621 Nucleonic Products Co., Inc., Los Angeles, Calif., is to receive U.S. trade-mark grant (Principal Register) for letters MPC for its line of nucleonic and electronic components and assembled apparatus.

MEETINGS, COURSES, CONFERENCES...on nuclear subjects...

CONFERENCES:- National Conference on Industrial Hydraulics, Chicago, Oct. 18-19, will hear discussion of hydraulic applications in design and operation of nuclear reactors.

Conference by U.K. Atomic Energy Authority, Harwell, Nov. 30, will be for purpose of acquainting British industry representatives with the UKAEA program of research on advanced types of nuclear power reactor systems.

Sincerely,

The Staff,
ATOMIC ENERGY NEWSLETTER

